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Bird Migration and the Introduction of Foot-and-Mouth Disease.†

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In an article entitled "The Question of Invasion," prepared by the senior author (S. S.) for his Annual Report in 1919*, he discussed the problem of invasion of this country by foot-and-mouth disease in the light of what seemed to emerge from studying the outbreaks over a period of twenty years. Since then further outbreaks have been considered (1919-1921) but, although these necessarily increase the number examined, the alteration in the incidence of locality is negligible, and no entirely new facts of importance have come to light. By examining the recorded stories of outbreaks, it was found possible to classify them under two important heads:—(*a*) Initial outbreaks of invasion; (*b*) Outbreaks of ramification from the former.

Those in (*b*) require no further explanation for their classification.

As regards those placed in (*a*), they are those which arose after the country had been free from the disease for more or less long periods—months or years—in excess of what there is reason to believe represents the usual viability of the virus outside the body, and those arising simultaneously in parts of the country very remote from each other and having no possible connection, except perhaps through the same agency, whatever it be, whereby the virus is carried long distances and in certain directions. This apparently is the same problem as that of invasion from without the country. In this particular connection it has to be noted:—

(1) That the entry into Great Britain of ruminants and swine was totally forbidden, as was also the importation of straw and hay from any infected country; yet the outbreaks of invasion continued.

(2) That the outbreaks were dealt with by slaughter, and the question of recovered carriers of infection did not therefore arise.

(3) That all infected premises, after slaughter of the animals, were disinfected both chemically and by prolonged isolation as regards fresh stock entering thereon, and were never attacked more than once.

† Reprinted from the November number of *The Journal of the Ministry of Agriculture.*

* *Annual Report of Proceedings under the Diseases of Animals Acts, Ministry of Agriculture; see also Journal of Comparative Pathology and Therapeutics*, Vol. XXXIII., 1920.

POSSIBLE CARRIERS OF INFECTION.

Feeding stuffs and packing materials imported from abroad, and human beings who had come from foreign countries, fell under suspicion as the mechanical carriers of infection in general, for the evidence is definite in connection with the outbreaks of ramification that infection can be carried by human beings, by food-stuffs, and by straw. Although on inquiry it very occasionally transpired that one or other of these possible agencies might have been the origin of an initial outbreak, in the vast majority of cases there was no such evidence, and in many cases the initial outbreaks arose on more or less isolated farms, where nothing but home-grown material had been used; at which no strangers had visited; and off which the residents and attendants had not been for some considerable time before the outbreak. Additional and strong evidence against imported materials of commerce or human beings from abroad being generally responsible for the introduction of infection, was brought out from the fact that the distribution of the initial outbreaks did not follow the lines of distribution of the imported food-stuffs, etc. Human beings, and imported food-stuffs, go to all parts of the country, but it transpired, in fact, that the greater part of the United Kingdom had escaped outbreaks of initial invasion, and that these, over a period of twenty-two years, had arisen almost entirely in more or less definite areas, some of these, again, being much more favoured than the others. The same premises in these areas, moreover, were practically never stricken a second time, a fact which finally demolished the improbable suggestion that infection might have lain latent from a previous outbreak. The distribution of these initial outbreaks of invasion was sufficiently definite to justify the conclusion that it did not arise from purely fortuitous circumstances. As is well-known, the invasions of this country occur during waves of prevalence of foot-and-mouth disease on the Continent of Europe.

Human beings, imported animals, and food-stuffs—the ordinary communication between farm stock and the outer world, as it were—having been eliminated as agencies of conveyance in general, it seemed worth while examining the possibility of the virus being air-borne, particularly through the agency of birds. It is worthy of mention here that publication of the article previously referred to (Annual Report, 1919) has aroused special interest amongst the inspectorate staff of the Ministry of Agriculture dealing with outbreaks in the field, and some of them in their

reports have been able to furnish actual and personal observations, which tend to show that in connection with outbreaks of ramification, at least—outbreaks arising, say, up to a few miles apart from each other—birds are responsible for carrying infection. The reports also contain the information that at the time of certain initial outbreaks flocks of birds (place of origin unknown) had been observed in the neighbourhood,and even on the farm where infection arose.

In outbreaks of ramification birds (chiefly starlings, rooks, crows, wood pigeons and gulls) have been seen to feed at the troughs used by affected animals at pasture, and to fly to other farms nearby, where disease subsequently broke out, notwithstanding there had been no other known communication between the premises.

In considering the way in which birds might carry infection, three possibilities suggested themselves :—

(1) The birds might contract an attack of the disease in some form. Birds in general are known to be very insusceptible to the disease, but there are recorded cases which seem to show that this species-insusceptibility is not absolute. Therefore, given only a few susceptible birds affected with the disease, amongst the millions which migrate to this country, this explanation would not outrage the observations as to incidence.

(2) That by frequenting infected pastures, etc., the birds might contaminate their feet or plumage with the virus, and afterwards carry it over long distances to other pastures, etc. This is definitely possible, since we know that the virus, so long as it can find the conditions for maintaining its viability, can be carried on straw, hay, clothes, etc., and feathers might warrantably be included.

(3) That the virus might be swallowed (in food or water) by birds, pass through their intestines uninjured and afterwards be excreted in their droppings at places remote from where the virus was picked up.

The object of this article is to deal with the circumstantial evidence, without, for the moment, dipping into the experimental evidence, such as it is at present. It is a remarkable fact, however, that initial outbreaks of invasion practically never arise amongst animals which are completely housed, and the ramifications from initial outbreaks are infinitely more numerous if invasion occurs at seasons when most of the animals are at pasture. The spread of the disease from premises to premises, moreover, can be checked to a remarkable extent if owners can be prevailed upon to keep their animals indoors, which may, of course, at times be impossible, for obvious reasons.

A map of the initial outbreaks—80 in number—over a period of twenty-two years, was filled in (see Map 1, which is a summary, as it were, of the principal map). A chart was also constructed showing the monthly incidence of the initial outbreaks in each year of the twenty-two ; the totals are summarised in Table I.

It is upon the above records and circumstances that the junior author* has brought to bear her studies on birds and their movements, a subject which has occupied her attention for many years. To prevent misunderstanding, however, it should be explained that, both the authors being aware that a positive was practically impossible to prove under the circumstances, the object of the inquiry in the first instance was to see whether the question could not be definitely settled by proving a negative, that is to say, by finding the circumstances of invasion so out of accord with those of bird movements that the theory could not be entertained. This, it is hoped, will relieve the authors of any imputation of a desire to engage in special pleading.

* Miss Garnett is almost entirely responsible for the work relating to bird movements in particular.

Bird Migrations.

A closer examination is made in this paper of the initial outbreaks of foot-and-mouth disease for the last twenty-two years in connection with bird migration, and particularly the migrations of those birds which frequent pasture land, as these are the most likely to carry the virus of the disease, if it can be so carried.

Foot-and-mouth disease occurs very little in the countries north of Denmark, and if birds bring it to England from the Continent, they must come from countries to the east, south-east and south. One would expect, therefore, to find most of the outbreaks in the south-east part of England. This is actually so ; for if a line is drawn from the Wash to the Bristol Channel, it will be found that in the district north and west there have been 27 initial outbreaks, and in the district south and east 52, or nearly twice as many. Of these 52, 36 have occurred east of a line drawn north and south through the Isle of Wight.

There are two great tides of bird migration which flow through these islands ; (*a*) the well-known movement roughly from north and north-east to south in autumn and back in spring, and (*b*) the less known, but not less important movement from east to west in autumn and west to east in spring.

In the autumn migration on the " north and south route " great numbers of birds arrive on our north-east coast from Scandinavia to continue their journey southwards, and birds from Iceland, Greenland, and northern Europe, pass down both the east and west coasts. This migration need not be taken into account, because the birds following these lines do not come from countries frequently infected.

There remain, then, two regular annual migrations of birds from the south and east :—

(1) The spring migration from the south of birds returning to summer quarters in the British Isles, or passing through on their way further north. This movement begins about mid-February and lasts through March, April, May, and sometimes even into June.

(2) The " east to west " autumn migration, when immense numbers of birds arrive on our east and south-east coasts after crossing the North Sea from the shores of Belgium and Holland. This migration starts in mid-September, and lasts throughout October and the first half of November. It may,

however, start again any time during the winter when there is severe weather on the Continent of Europe.

The following table shows the total number of initial outbreaks of foot-and-mouth disease for each month of the year over the whole period 1900-1921, and also the number of years during the same period in which outbreaks have occurred in each month.

The second set of figures shows pretty clearly in which months the outbreaks are of most *regular* occurrence, and serves as a useful check on the first set, though the first set would be influenced more or less by the opportunities for infection of a large or small number of birds.

MAP 1.—Showing Initial Outbreaks of Foot-and-Mouth Disease during 22 years (1900-1921).

TABLE I.

	Jan.	Feb.	Mar.	Apl.	May	June	July	Aug.	Sep.	Oct.	Nov.	Dec.
Number of Outbreaks	14	5	4	4	2	2	9	3	8	8	8	12
Number of years in which outbreaks have occurred ..	4	4	4	4	1 or 2*	2	5	3	6	5	6	6

* 1 doubtful case.

From this table it is clear that by far the greater number (rather more than 64 per cent.) of initial outbreaks have occurred in the months from September to January; that is, in the months when birds are coming to England by the "east to west" route, either on normal migration, or (in December and January) owing to hard weather on the Continent. The incidence is also annually high in these months.

From February to May, the months of the spring migration, there are far fewer initial outbreaks, and they are of less regular occurrence than in autumn and winter.

The three summer months, June, July, and August, are of peculiar interest because of the large number of outbreaks in July. Migration during the summer is not altogether at a standstill; belated spring migrants are still passing north in June, and in July and August there is probably a little east to west migration. Until, however, more is known definitely of the movements of birds at this season, it is difficult to say whether they can account satisfactorily for the *number and regularity of these outbreaks* in July, and the incidence in this month must for the present be accepted as unfavourable to the theory of birds as carriers of infection over long distances.

So far as can be seen from a contour map, however, the localities of the outbreaks of foot-and-mouth disease favour, on the whole, the idea that the virus may have been introduced by birds. The majority are not exactly on the coast; but migrants, on arrival, unless very exhausted, usually fly inland for some distance before alighting; and many of the more inland outbreaks are in river valleys, which are always great highways for birds. Even when there is an isolated outbreak well into the country (like that near Ripon on 16th July, 1910) there is always the possibility that just before and after that date the bird or birds did not alight in any place where they could have come in contact with cattle, etc., or that cattle did not pick up the virus although deposited.

A striking feature about the outbreaks on the coast is that, unlike those more inland, most of them are near towns of some size. For instance, out of ten outbreaks on the coast in Kent, two are near Rye, two near Folkestone, one near Hastings, one near Deal, and one near Margate. There is probably some reason for this, and so far as birds are concerned the most likely explanation is that these outbreaks have been caused by gulls, which are attracted to places where fishing goes on by the offal that is thrown out.

Species of Birds likely to be Carriers.

Before going into more detail with regard to the individual outbreaks, it will be useful to review briefly the birds which, from their habits, would be most likely to carry and spread the disease. These must be mainly birds which (*a*) frequent pasture fields, and (*b*) are migrants, coming to this country from places to the east and south (infected countries), especially birds using the "east and west" route in autumn and winter.

Immense numbers of Rooks (*Corvus frugilegus*), Jackdaws (*Colœus monedula*), Starlings (*Sturnus vulgaris*) and Skylarks (*Alauda arvensis*) come in from central Europe in autumn, travelling from east to west across northern Continental Europe, and down the river valleys to the coasts of Belgium and Holland, whence they cross the North Sea to our east and south-east coasts. In spring, birds of the same species which have wintered in southern Europe, arrive on the south coast, and also on the east coast between Kent and Norofik. All these birds frequent pasture land. Starlings in particular delight in feeding close to animals at pasture. They are also attracted to feeding troughs in winter.

Wagtails, particularly Pied Wagtails (*Motacilla alba lugubris*), are also fond of feeding near animals at pasture, probably to pick up the insects they disturb in the grass. These birds do not use the east and west route, but Yellow (*Motacilla flava*), White (*Motacilla alba alba*) and some Pied Wagtails come in from the south in spring.

There are a few records of Herons arriving on the east coast in September, and they are birds which sometimes frequent marshy pastures and those bordering rivers and ponds.

Geese come in autumn from the far north (which is not infected), but some which have wintered on the Continent pass through in spring on their return journey north, and both geese and ducks come in great numbers to the east coast in hard winters, when the marshes of the Baltic and the Holland coast are frozen. The grey geese feed regularly in the fields and marshes at night, but usually near enough to the sea or to some estuary to return there to rest during the day.

Of Ducks, the Mallard (*Anas platyrhynchus*) (Wild Duck) and Teal (*Anas crecca*) are perhaps the most likely to come in contact with cattle. Most of the mallard wintering in this country come from the north in autumn, but in hard winters many come from the east and south-east also. At that time of year they often spend the day in large flocks on the sea, or on mud flats, or sheets of open water, flighting in at night to feed in the marshes and fields.

Some of our teal (as well as some mallard) winter on the Continent, and might bring the disease back with them in spring. They would only be likely to affect cattle in marshy fields or near drinking pools. Several initial outbreaks have arisen on such pastures.

A great many Woodpigeons (*Columba palumbus*) come to this country by the east and west route. They do not regularly feed in pasture lands, but may visit the feeding troughs.

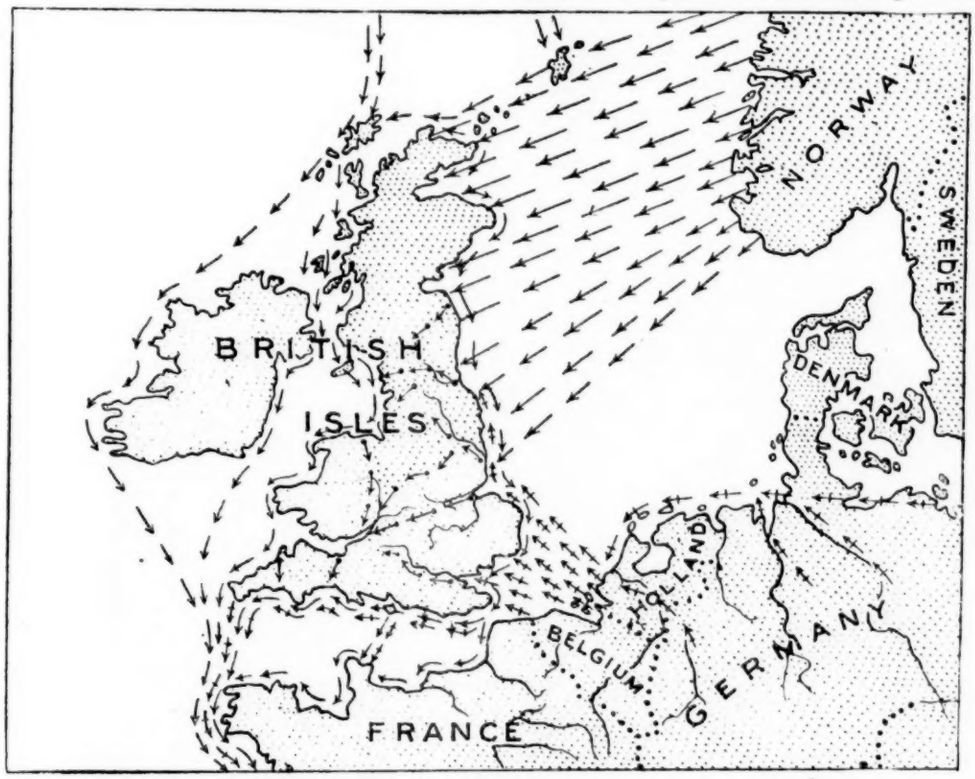
There are three common Waders which frequent pasture fields in large flocks. The Lapwing (*Vanellus vanellus*) (Peewit or Green Plover) and the Golden Plover (*Charadrius apricarius*) are found both inland and on the coast, the former being extremely common and the latter fairly well distributed in winter. Immense numbers of lapwings, as well as a few golden plovers, come here by the "east to west" route in autumn and winter. These birds might also bring the disease when migrating north in spring.

The third wader, the Curlew (*Numenius arquata*), is much more of a shore bird in winter than the other two, especially in cold weather, though many resort to inland pastures to feed or to rest at high tide. Some curlews come in by the "east to west" route, and birds wintering further south pass through England in spring, when they go inland to their nesting places, and they also follow some of the

overland migration routes on their way further north.

The Redshank (*Tringa totanus*) and Common Snipe (*Capella gallinago*) ought perhaps to be included in the list of waders; both, though present in England all the year round, are migratory to some extent, and both are fond of marshy pastures.

There are other waders, some of them typical shore birds, which might bring the disease when migrating overland or along our coasts, especially when they return northwards in spring and early summer; but none are of great importance in the present connection, though it is possible that even rare visitors (or vagrants) might cause isolated cases.



MAP 2.—Diagrammatic Map of Bird Migration Routes (Autumn).

GULLS are especially interesting because of the large numbers of immature and non-breeding birds which have nothing to prevent them from wandering about at all seasons. Of the five common kinds, four—the Greater Black-backed Gull (*Larus marinius*), Lesser Black-backed Gull (*L. fuscus*), Herring Gull (*L. argentatus*), and Common Gull (*L. canus*)—take from three to five years to become adult, and the Black-headed Gull (*L. ridibundus*) does not usually breed until two years old. These gulls vary individually in numbers at different places and different seasons, and except the great black-backed, are by no means confined to the coast. The two smaller kinds (black-headed gull and common gull) feed to a large extent on earthworms and grubs, following the plough or getting them from pasture fields. All gulls are, however, omnivorous, fishing when inland in rivers and ponds and feeding on garbage heaps. Several initial outbreaks have arisen near garbage heaps from slaughterhouses and fish factories. Gulls often rest in pasture fields even when not feeding there.

Not much is known definitely about the migrations of gulls. There is a general movement south in autumn, and north in spring. During the herring season on the Norfolk coast (*i.e.*, in autumn), large numbers of great black-backed gulls and herring gulls congregate there, and it is almost certain that some immigration of gulls takes place at that time from the coasts of Holland and Belgium.

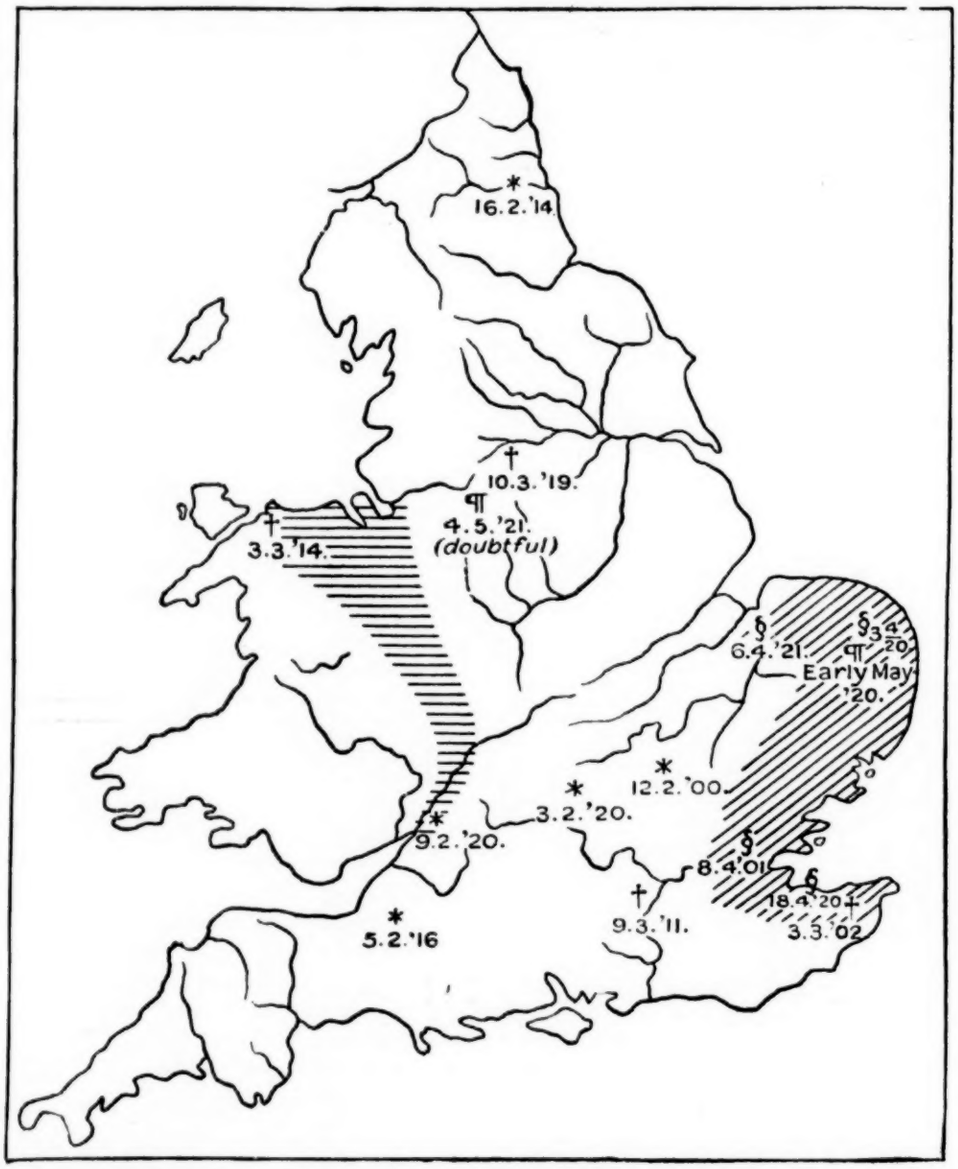
Besides these regular migrations, gulls are often on the move; when going from place to place they prefer to fly against the wind, and it is impossible to say how far they may go in search of food. The summer wanderings of immature and non-breeding birds might possibly account for some of the July outbreaks, which occur when there is practically no regular migration.

A closer analysis of the migratory movements o birds in relation to the seasonal and local incidence of the outbreaks of invasion (initial) is attempted in the following paragraphs.

Spring Migration.

(See Map 3, February, March, April and May).

Birds returning in spring to the British Isles to breed, or on their way further north, either cross the Channel direct to the south coast, and make their way north by inland routes, or follow up the east and west coasts. Many of them pass inland up the river valleys on their way to their nesting places. Those which have come up the west coast of Europe and are bound for Scandinavia and northern Europe, may cross the Channel via the Scilly Isles and then continue north-eastwards along the south coast of England, or turn northwards up the west coast for some distance before crossing over to the east by one or other of the overland routes. The general tendency at this season is from west to east over England as well as from south to north.



Map 3.—Distribution of Outbreaks of Foot-and-Mouth Disease in February, March, April and May.

The oblique shading indicates roughly the area most affected by immigration of Rooks, etc., on the East Coast at this season.

The horizontal shading shows the route followed by Gulls from the Severn to North Wales and Lancashire.

This migration does not start till mid-February (W. Eagle Clarke gives 11th February as the earliest date for arrivals on the south coast). The February outbreaks are all early in the month. This, however,

would not necessarily exclude birds as carriers since earlier movements might take place at the tail-end of winter, and as weather movements. Nevertheless, it would be very curious if the weather migrants carried the disease in early February and the regular migrants did not do so later in the month, but neither spring immigration nor spring invasions are to be regarded as confined to February; the incidence is high in March and April, only falling in May and June.

It must be borne in mind that all the dates here mentioned, and those on the maps, are the dates of the actual appearances of the disease, and that from five to ten days or more must be allowed for the virus to be picked up and for the period of incubation in the animal. This might easily take early February outbreaks back to January and winter movements, and so on for other dates.

South of the Wash there are March outbreaks in Kent and Surrey, April ones in Kent, Essex and Norfolk, and one May outbreak in Norfolk. These might be accounted for by the south to north migration of birds which have come directly across the Channel to the south coast; or the outbreaks in Kent, Essex and Surrey might equally have been caused by birds which had entered the country by way of the Thames estuary.

Either way the absence of outbreaks in the west of England and in South Wales is noteworthy, and if it means anything, points to infection having come from south-east rather than from due south. The idea that this may indeed be so receives some support from the fact that, according to W. Eagle Clarke (*Studies in Bird Migration*), "during late February, throughout March, and sometimes the first half of April, considerable numbers of rooks, occasionally accompanied by daws, starlings and skylarks arrive during the daytime on the south-east coast of England between Kent and Norfolk." These birds arrive from the east and south, and must be almost the only birds following the east and west route in *that direction* in spring.

The March outbreak in Yorkshire might have been due to birds which had come up the east coast and followed up the river valleys from the mouth of the Humber.

The March outbreak in North Wales would not appear very difficult to account for, at first glance, on the theory of birds being carriers. There is a well-known migration of gulls in autumn from the Dee estuary across the Ellesmere district of Shropshire and down the Severn valley to the Bristol Channel, and in spring there is a rather less marked return movement north along this route, some of the birds crossing the hills of north-east Wales, which would bring them out in the Rhyl and Conway valleys. This route is followed by black-headed, herring, and lesser black-headed gulls, and except for the first they do not often alight on the way. The March outbreak (Denbigh) would fit in well with this spring movement.* There have, however, been two other outbreaks along the same coast, neither of them anywhere near the time of the spring migration. These will be referred to later.

Summer Migration.
(Map 4, June, July and August).

In June some birds on passage to the north continue to cross our shores; and in July a few waders certainly arrive, mostly non-breeding birds and those that have finished nesting early. Some of these have probably come to us from the south-east (*e.g.*, Ruffs in Kent). Most of the birds of which records are to be found, however, are of the rarer kinds, and as the July outbreaks have been, comparatively speaking, numerous, and have occurred in five different years, which shows them to be almost as regular as the winter ones, fortuitous migrants can hardly be accepted as having introduced the virus in July.

There are a few birds which from their habits are to some extent open to suspicion, though there is little or no positive evidence of their coming from the Continent at this season.

Young starlings, both here and on the Continent, flock together and begin to move about as soon as they are fledged (*i.e.*, about the middle of June). From 20th June onwards great numbers migrate from east to west across Heligoland, and there is some evidence that they have once or twice arrived on the east coast of England about the end of the month. It would seem, however, very exceptional for this migration to reach our shores.

Some lapwings are in flocks as early as the middle of June, and the fact that our own breeding birds are moving down to the coast and sometimes visiting outlying islands and lightships in late June and in July, makes it possible that some immigration might take place without attracting notice.

Young herons (*Ardea cinerea*) on the Continent have been known to make very long journeys before the end of June; and while but little is known definitely of their migrations it is certain that there is a little immigration by the east and west route in autumn; as with the lapwings, the arrival of a few in late summer would be difficult to observe, because the home-bred birds frequent the shore at that season.

If birds have carried the virus for these July outbreaks, movement of gulls would also be a possible explanation. There are always a lot of young, and some old, non-breeding birds round the coast in summer; they wander inland almost anywhere, following up the river valleys, visiting ponds and reservoirs, and any fields where they can find food. Their numbers might easily be increased by arrivals from the Continent without attracting notice, especially in summer when our own breeding birds are beginning to move about.

* Given outbreaks in England in the northern or southern limits of this track, infection might be conveyed from north to south or vice versa. It is a fact that outbreaks on the Lancashire coast have been followed by others of quite obscure origin on the south-west coast.

The distribution of these outbreaks particularly arouses curiosity; five out of nine in July are north of the Wash to Severn line, while in all the other months the majority of the outbreaks are south of that line.

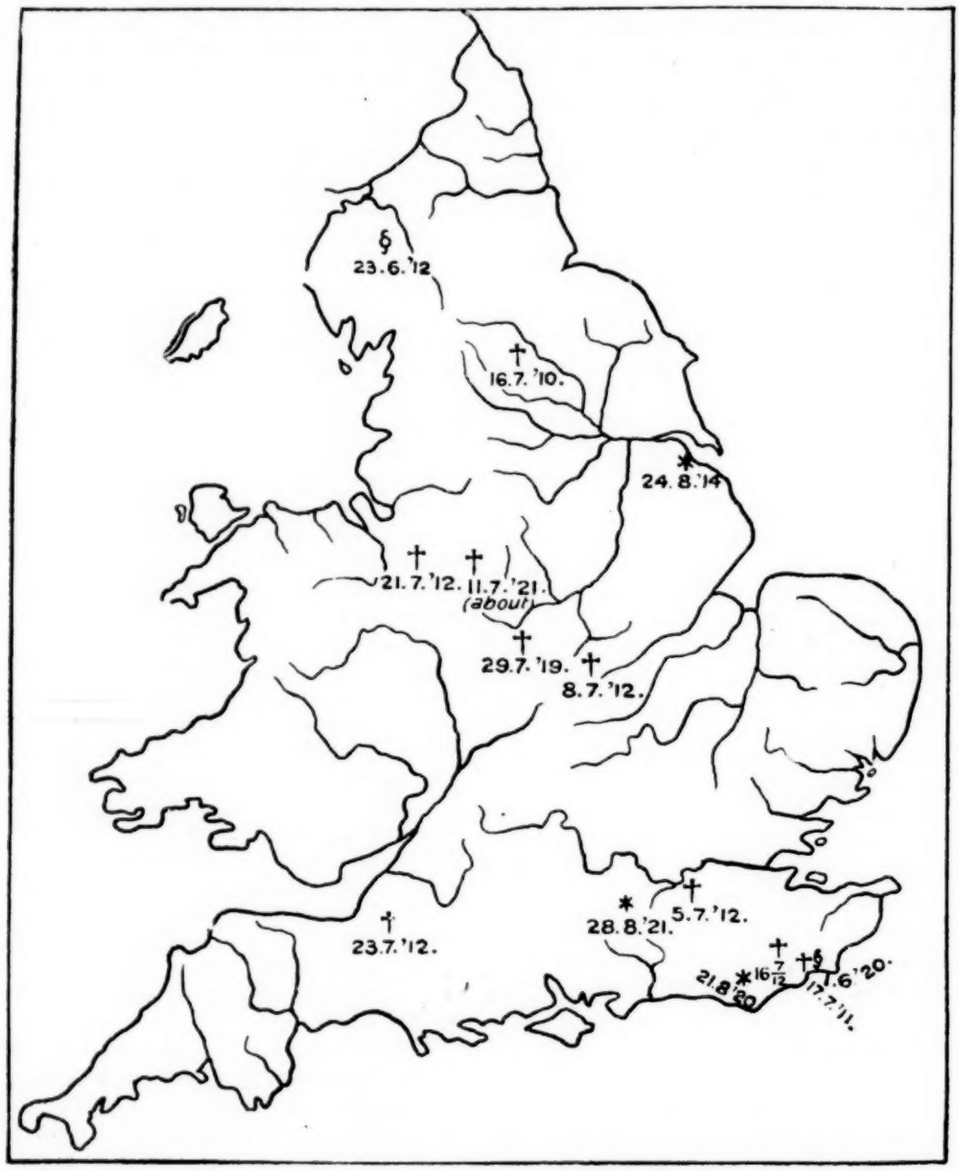
In most of the cases north of the Wash, it looks as if the disease had been brought up the Humber and dispersed along its tributaries into the surrounding country, or else had been brought in by the Wash and carried across England in a north-westerly direction; this might also apply to the outbreak in Cumberland in June, 1912. The July outbreaks south of the Wash might have been caused by birds which had entered either by the south coast or up the Thames valley.

The outbreaks on the coast in Kent, near Rye, in July, 1920, and June, 1911, by their position close to a fishing town, at once suggest gulls, possibly from the northern coast of France.

Autumn Migration
(Map 5, September, October, November).

In autumn, besides the birds which stream down our coasts from the north, and those which cross the North Sea from Scandinavia and arrive on the east coast of Scotland and the north-east coast of England (these come from clean countries), an immense number comes to us from the east and south-east, across the southern portion of the North Sea.

The centre of this immigration (from east and south-east) is on the Essex coast and the mouth of the Thames, and it extends from Dungeness, in Kent, as far north as Lincolnshire. The direction from which the birds come is due east on the Essex coast



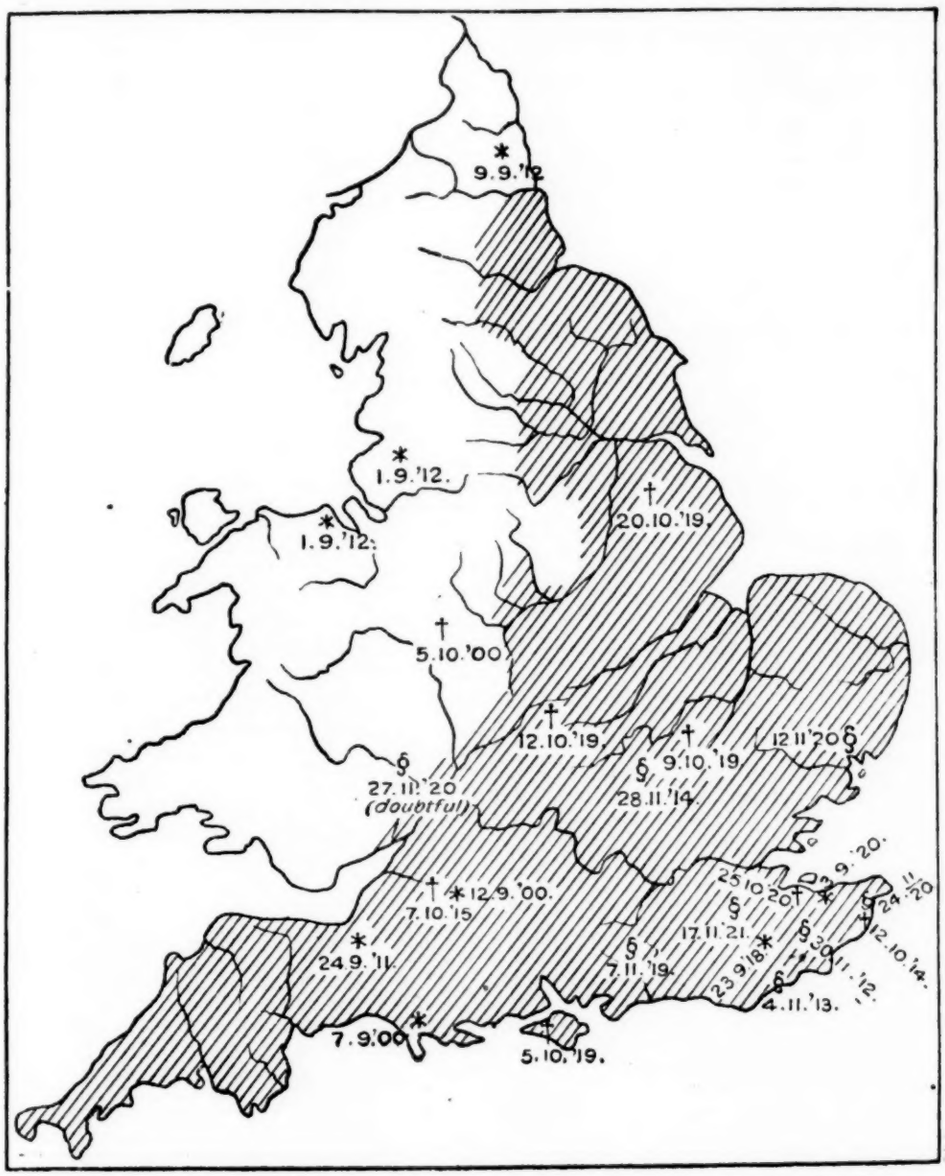
Map 4.—Distribution of Outbreaks of Foot-and-Mouth Disease in June, July and August.

and mouth of the Thames, and south-east in Norfolk and Lincolnshire, where, from their line of flight, they are thought to have crossed the North Sea from the estuaries of the Maas, Scheldt and Rhine, down which rivers they have travelled on their way from central Europe.

From the north coast of Norfolk many birds turn south-west and cross England from the Wash towards the Bristol Channel; others continue to "skirt the coast northwards (which they—the skylarks and grey crows in particular—sometimes do as far as the Tees) proceeding inland at various points as they go. Those forming the left wing, and they are a considerable contingent, pass westward along our Channel shores to reach winter quarters in southern and south-western England and in Ireland, while others doubtless cross towards the shores of France en route for more southern lands."*

The regular autumn migration lasts from September to mid-November, and all the initial foot-and-mouth outbreaks during this time occur in areas which could be affected by the migration. A few of the September outbreaks are rather early for this regular migration, but there is no doubt that some birds arrive in this country from the east as early as August.

The isolated series of outbreaks in Northumberland, Lancashire and North Wales in September, 1912, is interesting, and at the same time puzzling. For one



MAP 5.—Distribution of Outbreaks of Foot-and-Mouth Disease in September, October and November.

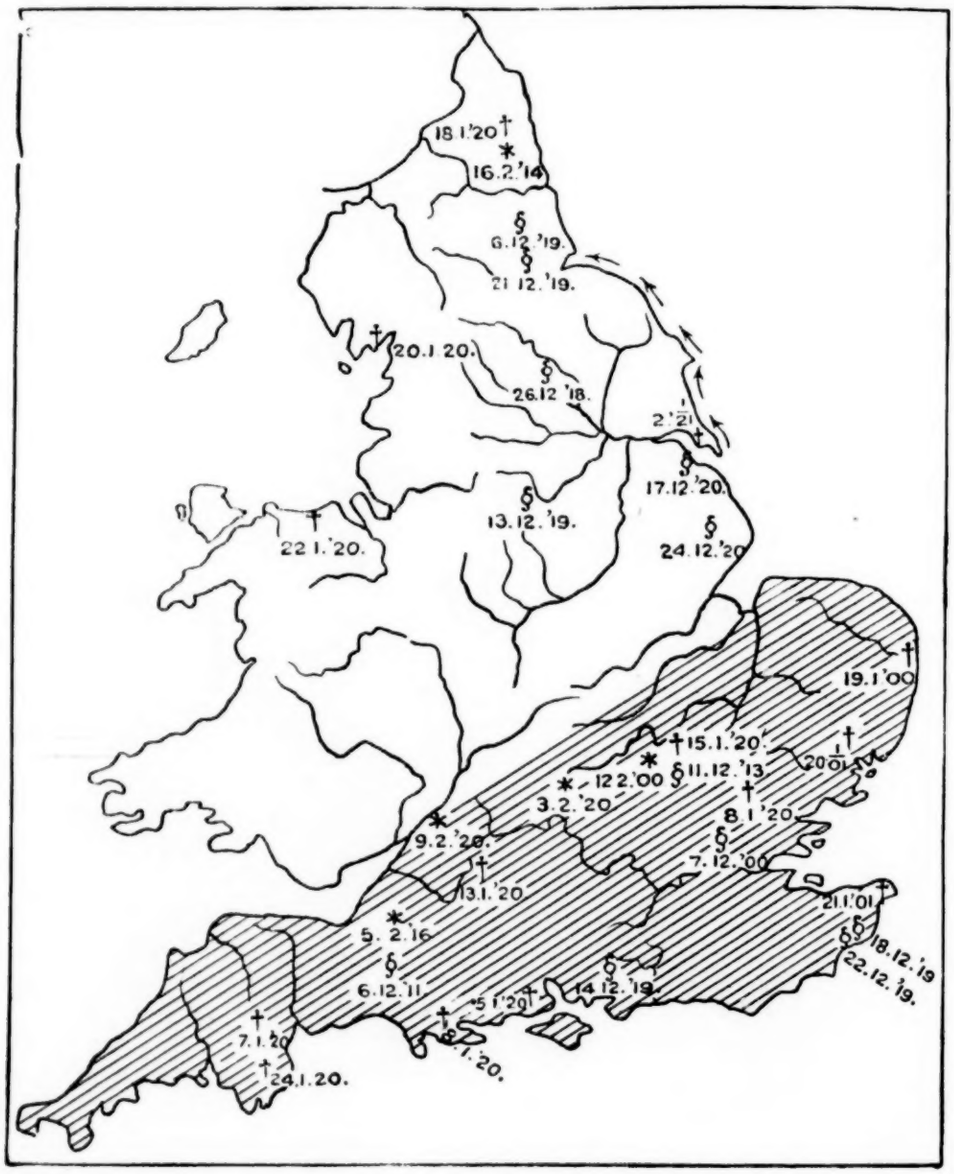
The shading indicates roughly the area affected by "East and West" migration at this season.

* W. Eagle Clarke, *Studies in Bird Migration.*

thing they are much further north than any others at that season. Again, there have been three initial outbreaks altogether on the north coast of Wales in twenty-two years—these constitute the only outbreaks up to date which have arisen on the west coast—and there is a curious coincidence between these and the initial outbreaks in Northumberland, viz. :—

1912. N. Wales—1st Sept. Northumberland—9th Sept. South Lancs.—1st Sept.
1914. N. Wales—3rd Mar. Northumberland—16th Feb.
1920. N. Wales—22nd Jan. Northumberland—18th Jan. North Lancs.—20th Jan.

The Lancashire outbreaks in 1912 and 1920 seem partly to link up the two places. Whether there is really any connection, however, is a matter for speculation; there is certainly migration overland between the north-east and north-west coasts which might account for it, but one would not expect to find birds moving north-east in September or south-west in February-March. There is, however, so long an interval between the latter (16th February– 3rd March, 1914) series of outbreaks that they are less likely at least than the others to be connected.



MAP 6.—Distribution of Outbreaks of Foot-and-Mouth Disease in December, January and February.

Shading incidates roughly the area chiefly affected by "East and West" migration at this season.

The arrows on the N.E. Coast show the course of Gull movements during N. and N.E. winds.

WINTER MIGRATION
(Map 6, December, January and February).

After the middle of November the regular autumn migration ceases, but nearly every winter there are

spells of hard weather when birds from the Continent are driven to seek refuge in the British Isles, where, especially in the west, the climate is milder.

Many of these birds come by the "east and west" route, their migrations sometimes lasting for days if the weather continues severe, and at such times swarms of birds including rooks, larks, lapwings, and great numbers of wildfowl, arrive on our east and south-east coasts, most of them travelling westward through southern England, or along the south coast, or crossing to Ireland.

These forced migrations in search of food and shelter may occur at any time between November and March, but the chief months are December and January, which are also months when the number of outbreaks of foot-and-mouth disease is high.

Any of the outbreaks south of the Wash, and after the regular autumn migration season, might have been caused by birds on these weather movements, but there have also been 11 north of the Wash where the "east to west" migrations apparently do not extend at this season.

There is a curious movement of gulls, however, on the north-east coast in winter, when, during strong north or north-east winds between October and January, great numbers of common gulls, herring gulls and lesser black-headed gulls fly along the shore or over the sea, heading north or north-west against the wind. This movement is observed in Yorkshire from Spurn Point to the Cleveland coast, and opinions differ as to whether it is true migration or only due to the gull habit of flying up wind (not nearly so many gulls return south, however, when the wind changes to south-west). Either way it is possible that birds from the Continent may form some part of the movement, especially as north-east winds in winter often coincide with very cold weather. In Yorkshire during the north-east wind the gulls only fly past over the sea, but there seems to be no mention of them passing up the Northumberland coast, and as the movement depends on wind, it must be of uncertain duration, and it would account for the presence of gulls from the south on the north-east coast at that season. Once there they might wander anywhere inland in search of food.

These winter movements do not, of course, occur with the regularity of the autumn and spring migrations, and yet there have been more outbreaks of foot-and-mouth disease in December, January and February than in September, October and November. If, therefore, the disease has been brought by birds in these out periods, some further explanation seems necessary. It might depend, however, upon the habits of birds varying with the seasons, as they do. For instance, some which feed in stubble fields in autumn take to the pastures in winter, and so would be more likely in that season, if infective at the time, to infect animals at pasture.

Conclusion.

In conclusion, there would appear to be most remarkable relations, both as regards seasons and localities, between the movements of birds and the initial outbreaks of invasion in foot-and-mouth disease in Great Britain. Some of these outbreaks however, do not correspond with what are believed to be the known facts as regards bird movement. On the other hand, these facts are admittedly incomplete, and the circumstantial evidence as a whole is very far short of being able to establish a negative.

WORKS CONSULTED.

1. Studies in Bird Migration: William Eagle Clarke 1912
2. Heligoland as an Ornithological Observatory: H. Gatke 1895
3. A Manual of British Birds: Howard Saunders 1899
4. A Practical Handbook of British Birds: H. F. Witherby and others 1919
5. A History of the Birds of Kent: N. F. Ticehurst 1909
6. Birds of Surrey: J. A. Bucknill 1900
7. Birds of Hampshire and the Isle of Wight: J. E. Kensall and P. W. Munn 1905
8. Notes on the Birds of Rutland: C. R. Baines ... 1907
9. A Treatise on the Birds of Gloucestershire: W L. Mellersh 1902
10. Birds of Devon: W. S. M. D'Urban and M. A. Mathews 1892
11. A Vertebrate Fauna of North Wales: H. E. Forrest ... ...
12. The Birds of Yorkshire: T. H. Nelson ... 1907
13. Birds of Northumberland and the Eastern Borders: G. Bolam 1912
14. A Vertebrate Fauna of Lakeland: H. A. MacPherson 1892
15. Migrations of Birds as Observed in Lincolnshire: G. H. Caton Haig (Presidential address to the Lincolnshire Naturalists Union) ... 1913
16. A Contribution to the Ornithology of the Island of Texel: C. B. Ticehurst ... ("Ibis," April 1920)
17. The Autumn Movements of Gulls on the Norfolk Coast: B. B. Riviere (Trans. Norfolk and Norwich Naturalists Society, vol. XI, part 2) 1921
18. The Migrations of British Starlings: Results of the Marking Method: A. Landsborough Thompson (*British Birds*, Vol. XVI) ... 1922

And other papers and notes in *British Birds*, a magazine edited by H. F. Witherby.

Water Intoxication.

In man and animals water ingested in excess of the ability of the organism to excrete it leads to water intoxication. Water intoxication is manifested by restlessness, asthenia, polyuria, frequency of urination, diarrhœa, salivation, nausea, retching, vomiting, muscle tremor and twitching, ataxia, tonic and clonic convulsions, frothing at the mouth, helplessness, stupor, and coma. The convulsions are general in character, of extreme violence, and, in the main, resemble those of strychnine poisoning. They may recur at intervals of a few minutes. Water intoxication terminates in death unless the excessive intake is discontinued. It may be acute, ending in death in from four to twelve hours, or subacute, lasting for some days. Subacute intoxication results from smaller amounts of water continued over a longer period of time. The intoxication is accompanied by, and is probably due, in part at least, to increased intracerebral pressure; this, in turn, is probably a manifestation of disturbance in the salt-water equilibrium of the central nervous system. Water intoxication can be prevented, alleviated, or cured by the timely intravenous administration of hypertonic sodium chloride solution.—L. Rowntree (*Arch. Intern. Med.*, Chicago, August, 1923, 157; through *Journ. Amer. Med. Assoc.*, October 6th, 1923, 1233).

Lamb Disease in Northumberland.

Ministry's Report.

The full report of the investigations which have been conducted into the mysterious lamb disease in the County of Northumberland for the last two seasons by Sir Stewart Stockman, Chief Veterinary Officer, Ministry of Agriculture and his staff, is now available for publication.

"The conclusions arrived at," says the *Newcastle Daily Journal*, "while not of a positive nature, prove that the research work has now reached a stage where there is every hope in determining a definite solution of the cause of lamb disease, and discovering a remedy during the forthcoming lambing period.

"The Ministry of Agriculture have been forwarding the work by experiments on south-country lambs, and it is hoped that the result of these investigations will place the conductors of them in a position to proceed with the work much more rapidly towards a definite conclusion.

"The Non-Notifiable Diseases of Animals Sub-Committee of the Northumberland Agricultural Society (of which Earl Grey, of Howick, is chairman), who are in charge of the local organising efforts and are responsible for the raising of funds for the work locally, acknowledge the generosity of kindred societies in the county as well as landowners and farmers towards the investigation funds.

"The official report points out that one school of investigators have already made public their findings in regard to the elucidation of this obscure malady; another school, although making good progress, do not feel that the time is ripe to indulge in even the smallest amount of optimism with the result of their experiments made in the field and in the laboratory.

"Bacteriologically, the report gives ground for the attainment of very interesting developments in regard to the cause of the disease, its prevention and cure. In few instances do the findings of the investigators differ as to the identification of the pathogenic organism most usually present, its method of propagation, and its developments inside the body of the victim, its ravages, and its cultural peculiarities, but there are differences of opinion as to its direct importance as the causal factor. The report proceeds:—

"No possible clue is being lost sight of in the attempt to encircle the actual causal organism and its methods of producing the lesions of the disease. It is interesting to note that different types of sera and vaccines have been produced and put into practice on a scale sufficiently large to prove their efficiency. Unfortunately, the results have been decidedly disappointing, and carry no practical value as protection against the disease, and in this connection a new start will have to be made.

"All the investigators are on common ground as regards the systems, types, duration of the disease, and its post-mortem appearances. Unfortunately, unanimity terminates at once when the method of spread, degree of infectivity, and the part played by the ewe is discussed, and this is certainly not surprising in view of the history of the disease (as it exists in Northumberland) from 1915 to 1923 in different portions of the county, as described by stock owners, shepherds, and veterinary surgeons.

"All that can be done is being done to render aid to those whose flocks have been attacked by this disease, and it is evident that the investigators are leaving no stone unturned with a view to elucidating the cause, prevention, and cure of the disease.

"It may interest agriculturists to know that the results of experimental inoculations of ewes, due to lamb last month, at the Government Experimental Station, Weybridge, will shortly be coming to hand. The results may prove of inestimable value to all concerned, and may, experimentally, convey us a very long way towards our goal in elucidating some of the main difficulties confronting the investigators.

"In order to expedite matters, if possible, it was desired to have newly-born lambs to work the test upon before the next spring lambing season. For this purpose Dorset ewes were obtained due to lamb in October.

"Further investigations will be carried out in 1924, and it is hoped that all flockmasters will co-operate with the Northumberland Agricultural Society (Non-Notifiable) Diseases Committee in their efforts to eradicate this appalling scourge from our flocks, and to give this Committee their whole-hearted support, and to extend it also to the Ministry's officials and experts who are investigating the disease on the Northumberland Agricultural Society's behalf."

Owing to a misreading of our French contemporary the *Recueil de Méd. Vét.*, we stated in this column a fortnight ago that Professor Nicolas, who has been appointed Director of the Alfort Veterinary School, was the author of the well-known book on Veterinary Ophthalmology. This was an error, for which we apologise to our readers. It is, of course, Dr. Eugene Nicolas, who is Veterinaire Principal de 2e Class of the French Army, who is the distinguished ophthalmologist.

In view of the many complaints of the danger to horses and live stock generally, arising from the slippery condition of the roads, both the National Horse Association of Great Britain and the Hunters' Improvement and National Light Horse Breeding Society have determined to draw public attention to the matter, and are sending a letter to all county and rural district councils, urging that something should be done to minimise the danger. It is pointed out that beneficial results have been secured on certain roads by the use, after tar-spraying, of a larger size of grit, spread in a thicker layer, than is at present customary.

The Veterinary Record.

15th December, 1923.

National Veterinary Medical Association of Great Britain and Ireland, Limited.

EDITORIAL OFFICE: 10 Cray's Inn Square, London, W.C.1.

Cheques should be made payable and all communications sent to the General Secretary at the Offices of the Association, 10 Gray's Inn Square, London, W.C.1.

The address of the Association is now 10 GRAY'S INN SQUARE, LONDON, W.C.1.

PUPILAGE.

The difficulties surrounding the subject of pupilage were thoroughly discussed at the meeting of the Central Division, which was held last week at Red Lion Square, and as a result it is to be hoped that much misconception has been overcome and a way made clear for organised improvement in the future. The subject was ably dealt with by Major Hobday, and his views were endorsed by nearly every subsequent speaker; also, it was fortunate that there were several recently-qualified members present who were willing to freely express the feelings and opinions of the students and juniors, as these gentlemen have little opportunity and none too much encouragement to make their voices heard. The opinions generally expressed may be summed up as follows: Compulsory pupilage is undesirable, but voluntary pupilage for a period of at least one year prior to taking the final examination of the R.C.V.S. should be an obligation upon each student. This would entail three months' attendance with a good country practitioner in each of the four years of the college course, making one year's pupilage in all. It was agreed that a great obstacle to the production of good practical graduates is the reluctance which is shown on the part of the country practitioner to take pupils, or even to grant students facilities for seeing practice, it being recognised on all sides that the student who is able to get experience of practice during his course of study has untold advantages in after life in all branches of professional work over his fellow students whose experience has been limited to what he can learn within the four walls of a teaching institution. It is not fair that a young man who is willing and anxious to fit himself to the utmost of his ability for his future career must be debarred from doing so from sheer lack of opportunity or from the unwillingness of country practitioners to grant him some facility.

(*Continued at foot of next column.*)

Clinical and Case Reports.

The Editor will be glad to receive from members and others contributions to this column of reports of interesting cases.

Dental Caries in the Pig: Its Relationship to Tuberculosis of the Submaxillary Lymphatic Gland.

By F. T. Harvey, F.R.C.V.S., St. Columb.

In a lecture on "Types of Tubercle Bacilli" delivered by Dr. Louis Cobbet, Lecturer on Pathology at Cambridge, and published in the *Lancet* of May 20th, 1923, the following remarks occur concerning the susceptibility of the pig to tuberculosis:—

"It is the only one of the larger domesticated mammals clearly shown to be susceptible to infection by all three types of tubercle bacilli.

Its susceptibility to the types other than the bovine is, however, low, for in all cases found so far to be caused by bacilli of avian or human type, the disease has been strictly limited to the submaxillary lymphatic gland (Tubercle bacilli of human type alone have been found in the pig four times, and those of the avian type 48 times).

This raises the question why this gland is susceptible beyond that of the other cervical lymphatic glands of the pig.

It may be that the portal of entry in these cases of localised tuberculosis is the teeth of the lower jaw, and it is an interesting point in this connection, that the pig is said (I cannot speak with any certainty) to be almost the only domesticated mammal that suffers at all commonly from dental caries."

Two points of considerable interest in comparative pathology are raised here. In regard to dental caries

(*Continued from previous column.*)

In this matter a great responsibility rests upon the country veterinary surgeon. The future of our profession, which we are supposed to have so much at heart, lies in the hands of our young men. What are we doing, and what are we going to do, so to help them and give them freely of our experience that they may be fitted, so far as we can possibly help to fit them, for the great task that lies before them? If the profession is to be the great scientific and highly-skilled body of men that we wish it to be; if it is to take its proper place in the economy of the State, we must do our duty by our young men, and give them every facility for gaining experience in the early years of their career.

The National V.M.A. will gladly do its share of the work. A register will be opened forthwith in which will be kept records of the students and graduates who wish to gain experience and observe methods; also a record of those practitioners who will grant these facilities, and a record of the terms required. Every endeavour will be made to bring suitable parties into touch, and it is to be hoped that the efforts of the National will receive substantial support in every district.

there does not seem any evidence that it is at all common in the pig, but quite the reverse.

On the other hand one sometimes meets with alveolar or peri-odontal disease, more particularly in swine kept on to some age for breeding purposes.

At any rate actual disease either of the teeth or the peri-odontal membrane, can hardly be regarded as a serious factor in the development of tubercular disease of the lymphatic glands in pigs.

In order, however, to obtain definite evidence in regard to the matter, I suggested to Lt.-Col. T. Dunlop Young, M.R.C.V.S., D.V.S.M., Chief Inspector, City of London Markets, that he should examine the teeth in any cases of tuberculosis of the cervical lymphatic glands met with in pigs. This he very kindly has done, and he informs me that in examining 110 pig's heads (various ages) affected with tuberculosis in the submaxillary and other head lymph glands, he has not found a single case of dental caries.

In a further remark he suggests that the change occurring in the gum membrane during the eruption of the teeth may favour the entry of the bacilli and thus establish an infection. This is probable.

A Human Case of Foot-and-Mouth?

By J. Wright Conchie, F.R.C.V.S., Kidderminster.

When I was inspecting at a stock sale, a few days ago, an old farmer entered into conversation on the now all-absorbing topic—foot-and-mouth disease. He told me that when he was a boy, about 50 years ago, the farmers were not bothered with the different restrictions which at present exist in the control of outbreaks of the disease. At that time his father bought some store cattle at Bristol which had been imported from Ireland and, shortly after arrival at his farm in the Midlands, they developed foot-and-mouth disease, being so bad that they laid for days in the field as they were unable to stand. His father and mother undertook the treatment of these bullocks and kept all other persons away from them. Treatment consisted of washing out the mouths with salt and water, and dressing the feet with Stockholm tar, together with the administration of repeated drenches of gruel and other nourishing foods. All these bullocks made a splendid recovery, but shortly afterwards this farmer's wife had a very bad mouth, with abscesses in the jaw, and an inability to eat. The old country doctor said she was suffering from foot-and-mouth disease, which she was inclined to contradict by saying that her feet were all right. He held, however, that she had it in the mouth beyond question. It was necessary to spoon feed her for about six weeks, and every tooth in her head fell out before she eventually recovered. At this time a cow was kept to supply the house with milk and this cow was constantly licking the saliva from the mouths of the bullocks, *but it did not contract the*

(*Continued at foot of next column.*)

(*Continued from previous column.*)

disease and lived on for another 14 *years*. It seems peculiar that this cow should have escaped, as she was bound to ingest the saliva which she licked from the bullocks, and ingestion is said to be a fruitful source of infection. In addition to this, there frequently seem to be in the mouths of cattle some minute abrasions caused by the roughness of the food they masticate.

Divisional Report.

Veterinary Medical Association of Ireland.*

A meeting of the above Association was held in the Royal Veterinary College, Ballsbridge, Dublin, on Monday, 13th August, 1923, Captain Winter presiding.

In the absence of Professor O'Connor, owing to family bereavement, Professor Craig acted as Honorary Secretary to the meeting. Correspondence read included a letter from Professor O'Connor, apologising for his absence owing to the death of his father; and, on the motion of Captain Winter, a resolution of condolence with Professor O'Connor and his family was passed.

Apologies for non-attendance were received from Mr. Cosgrave and Miss Cust.

Mr. Ross, of Belfast, wrote, resigning his membership. The communication was received with very much regret, and after paying a very high tribute to the good work done by Mr. Ross for the Association and the profession in general, the meeting unanimously agreed to ask him to reconsider his resignation.

A letter was read from Mrs. Hatch, acknowledging Professor O'Connor's letter with reference to an inquiry relating to the Victoria Benevolent Fund.

There was also submitted correspondence between Mr. Walsh, of Carlow, and the Wicklow County Council with regard to the inadequacy of fees laid down by the Tuberculosis Order of 1914, as compared with those fixed by the Resident Medical Association. It was the unanimous opinion of the meeting that the fees set forth in the order were totally inadequate, and, on the motion of Mr. J. J. Kelly, seconded by Mr. Daly, the Secretary was instructed to write to Mr. Walsh, stating that the fees fixed by the Association are the minimum recognised by the profession, and recommending him not to accept less from the Wicklow County Council. The following report of the Council was read:—

Report of Council.

A meeting of Council was held at the Veterinary College, Dublin, on July 23rd, 1923, at 4 p.m.

The following correspondence was read:—

1. Letter from the Ministry of Agriculture, as follows:—

*Report received on November 28th, 1923.

No. V.B. 1282-23. 15th June, 1923.

Sir,—With reference to your letter of the 28th ult. relative to the case of Mr. J. F. Healy, M.R.C.V.S., Midleton, who formerly held the office of Veterinary Inspector to the Local Authority for the Macroom (Co. Cork) District, I am desired by the Minister for Agriculture to state that he finds Mr. Healy's appointment was determined by the Cork County Council, with the approval of this Department, on grounds which appeared to the Department to be sufficient, viz.: that the duties of the office required the appointment of an Inspector resident in the district.

The terms of Mr. Healy's appointment conferred no claim to pension or gratuity on his ceasing to hold office. The question of awarding him compensation for removal from office is not a matter for the Department, who have no funds at their disposal from which any portion of such compensation could be paid or refunded.

I am, sir, etc.,

P. O'Connor, for Secretary.

It was proposed by Professor Craig, seconded by Captain Sheil, and passed unanimously, that a copy of the terms of his appointment be procured by Mr. Healy for the Association in order that they may consult counsel before taking further action in the matter.

2. A communication from the "Performing Animals Defence League," London, soliciting the support of the Association in their efforts to prevent cruelty in the training of performing animals and enclosing a list of instances of such cruelty for which the trainers were convicted.

It was unanimously resolved to support the "Performing Animals Defence League" in the prevention of cruelty to performing animals.

3. A letter from Mr. O'Toole, reporter-deputy for Mr. Sheridan, enclosing account, £4 7s., for reporting the proceedings of the last general meeting. It was decided to pay same subject to revision by the Chairman, who had made arrangements with Mr. Sherwin as to the fee for reporting such meetings.

4. A letter from Mrs. Hatch, widow of the late Captain Hatch, R.A.V.C., appealing through the Association for help from the Victoria Veterinary Benevolent Fund, and enclosing a letter from Colonel Todd, R.A.V.C., advising her to take this course, as there are no Army funds to meet her case, since her marriage took place after the late Captain Hatch had been gazetted out of the Army.

It was resolved to reply to Mrs. Hatch, asking her to forward particulars of her case to place before the V.V.B. Fund, with a view to obtaining the help required.

5. A letter from Captain Reavy, as follows:—

20th July, 1923.

Dear O'Connor,—I regret I will not be able to attend Council meeting on the 22nd inst. I got a schedule from the Irish Blue Terrier Association, issued for their dog shows to be held here next month in Merrion Square. In the schedule I noticed an advertisement—a Mr. S. A. Rosenthal—a chemist in Dublin, who described himself as an "Animal Expert" and Veterinary Chemist. I sent the schedule to the Secretary of the Royal College of Veterinary Surgeons. I enclose his reply. Perhaps you would be able to get a copy of said schedule before the meeting, as I sent the one I got to London. Surely something can be done to stop this quackery.

Faithfully yours,

P. D. Reavy.

(*Letter enclosed*).

10 Red Lion Square, W.C.1,

16th July, 1923.

Dear Sir,—I beg to thank you for your letter of the 13th inst., with copy of advertisement published by Mr. S. A. Rosenthal, which I will submit to the Registration Committee at its next meeting. If you or the Irish Association have any influence with the Irish Kennel Club, it is probable you might be able to stop this kind of thing by arrangement with the Club more easily than by any other way.

Yours faithfully,

F. Bullock, Secretary and Registrar.

To Captain P. D. Reavy.

It was decided to secure a copy of the schedule in question and then take steps in connection with the matter.

The following gentlemen were proposed and seconded for membership: P. McGlinchey, Donegal; R. J. Nolan, Carlow; and P. V. Byrne, D.A.T.I.

Captain Sheil raised the question of reduction of the motor tax for veterinary surgeons, and mentioned that the Irish Medical Association had approached the Government on the matter with reference to medical men.

It was resolved to get into touch with the Irish Medical Association with a view to co-operating with them in seeking the required concession.

The date of the next general meeting was fixed for Monday, 13th August, at the Veterinary College, Dublin, at 7.30 p.m.

The question of employing a reporter for the meeting was left in the hands of the Chairman, Hon. Secretary, and Hon. Treasurer.

It was resolved to present Mr. C. Allen, F.R.C.V.S., with the certificate of Honorary Associateship at the forthcoming general meeting.

Arising out of a motion for its adoption by Captain Winter, seconded by Mr. J. J. Kelly, a discussion took place on the question of seeking a reduction in the motor tax, payable by members of the profession. Professor Craig reported that Captain Reavy had ascertained that the Irish Medical Association intended dropping the subject altogether. In these circumstances, and as that Association was too small a body to move in the matter on their own account, it was decided not to take any further action. Captain Winter pointed out that if the Medical Profession secured a reduction, no difficulty would arise in securing such reduction for the members of the Veterinary Profession. The report was unanimously adopted.

(*To be continued.*)

Notes and News.

The Editor will be glad to receive items of professional interest in these columns.

NOTICE TO DIVISIONAL SECRETARIES.

The Editorial Committee, wishing to be of assistance to the divisions, and with a view to achieving uniformity in the reports of meetings, and acceleration in their publication in the *Record*, are prepared to send their representative to report their proceedings.

Will Secretaries of divisions, wishing to avail themselves of this offer, forward particulars as to dates, times, and places of meeting to the Editor, 10 Gray's Inn Square, W.C.1, at least a month prior to such meetings, when the scale of charges will be forwarded to them?

Diary of Events.

Dec. 21st—N.V.M.A. Editorial Committee Meeting at 10 Gray's Inn Square, W.C.

Jan. 16th—South-Eastern Division Annual Meeting.

* * * *

Three committees were sitting last week and much work was done to clear the way for the Council Meeting next month. The Appointments Committee dealt with the various letters which have been received with regard to the salaries paid for State and Council appointments, and the course of future procedure was decided upon. The Finance Committee dealt with the general business of the Association, and the Special Committee to revise the Articles of Association went carefully through the whole of the Articles with the solicitor, in order that a preliminary draft may be made for further consideration. This is a matter that will take time and care, and is not to be carried through in a hurry.

* * * *

Thursday saw the first meeting this session of the Central Division, when Major Rees Mogg, the newly-elected President, was supported by a large gathering of members, though the number was not equal to those of many of the pre-war meetings. The membership of the Central is probably as high as it ever has been, and the proportion attending meetings will not compare favourably with some of the provincial divisions at the present time. Would not the introduction of some short practical paper on one of the old classical subjects which drew such good attendances and provoked such keen discussions in the old days have the same effect to-day?

* * * *

The meeting of the Midland Division at Leicester on Friday was rather a contrast, in that it was held on the borders of the Midland area, and at a centre which precluded the attendance of a large number of members, and especially those from the western portion. Yet there was a large and appreciative gathering, and the discussion on Mr. Stainton's very able and practical paper left nothing to be desired. Our President is indeed an ideal Secretary, and spares no pains to keep up the interest of the members. We noticed that before this meeting was over he had already arranged the programme of the next meeting, and had obtained the promises of fourteen members to introduce clinical specimens and cases. We understand that the Midland can make the boast that every single member is also a member of the National Association, and carries no passengers.

We hear that, in all probability, there will be an appointment made in April next by the Directors of the A.D.R.A. to fill the new post of Senior Research Assistant. By that time the new laboratories of the Association which are being equipped and fitted in the Royal (Dick) College will be ready, and work will be carried on in these and at the new field station, about two miles distant. The man to be appointed should preferably have had at least five years' experience in research, and be a qualified veterinary surgeon. The salary will depend upon the candidate's previous research experience, but it may be taken for granted that it will be about £500 per annum. Those members who are interested are advised to communicate with Professor Gaiger, at 83 Buccleuch Street, Glasgow.

* * * *

The General Secretary acknowledges with many thanks a handsome donation from the President towards the office equipment, also the promise of great assistance in the way of trade facilities from Mr. W. Aston, who has taken a practice at Derby. We wish him success in his new district.

* * * *

Mr. W. Woods was unable to attend the Committee Meetings last week, we are sorry to say. As if he were not content with all the work he has done in the past, and his arduous duties on the Court of Examiners, he has offered his services to the Ministry of Agriculture to help to fight foot-and-mouth disease. He was, therefore, unable to get to London. We hope this public-spirited work will be appreciated, for there can be little pleasure and less profit in it to a man of Mr. Woods' position in his profession.

Royal College of Veterinary Surgeons.

COUNCIL ELECTION, JUNE, 1924.

The foreign voting papers will be issued early in January, and nominations of members for election to the Council of the R.C.V.S. should therefore be sent in to the Secretary at 10 Red Lion Square as soon as possible. The retiring members are Mr. C. Blackhurst, Professor J. B. Buxton, Mr. J. Clarkson, Mr. G. H. Locke, Sir John M'Fadyean, Dr. Share-Jones, Mr. R. C. Trigger and Mr. J. Willett; all of whom are, of course, eligible for re-election. The only new nomination yet made is that of Mr. W. D. Rees, of Trealaw, Glamorgan, the President of the Mid-West and South Wales Division.

ANIMAL DISEASES RESEARCH ASSOCIATION.

Mr. Reginald Bristow, B.Sc., M.R.C.V.S., has been appointed Junior Research Assistant to the Animal Diseases Research Association. Mr. Bristow qualified at the Royal (Dick) Veterinary College, Edinburgh, in 1922.

Obituary.

MARTIN, William, 138 Maple Road, Penge, S.E.20. Graduated Edinburgh, November 22nd, 1879. Died 26th November, 1923, aged 73.

Dr. J. J. SCHMIDT, of Kolding, died on 12th November, 1923, aged 78. We hope to print an obituary notice next week.

Correspondence.

Letters to the Editor should reach the Office not later than by the first post on Tuesday morning for insertion in following Saturday's issue.
All correspondence must bear the name and address of the contributor for publication.
The Editor does not hold himself responsible for the opinions of his correspondents.

Fees under the C.D.A. Acts.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—Arising out of my letter in your issue of Dec. 8th, I notice, owing to a printer's error in the punctuation, there should have been a full stop after the word "smear," and the word "arising" should begin a new sentence. Your reader has also erased the figures "20" and replaced them by "10" in the sentence relating to mileage travelled. The County Council, as you will see, allows 1/- per mile one way but nothing for the first three miles. This means a fee of 7/- for a visit ten miles out, and, as the official covers the same ground back on his return journey, he really does twenty miles for 7/-, at which scale it works out at less than 4½d. per mile.

This item you have omitted altogether.—Yours faithfully, WM. SCOTT.

Friarn House, Bridgwater.

An Appreciation.

Dear Mr. Editor.—As one of the first to start the movement to have branch meetings reported by the representatives of the *Veterinary Record*, I feel that I must drop you a line of congratulation on the splendid effort you and your staff have achieved with regard to the publishing of the recent meeting of the Royal Counties Branch. I think I am quite correct in stating that never before has the report of a local Association appeared in print as early as eight days after the date of meeting. The report, too, of a long meeting has been very carefully condensed without losing any of the important features.

Once again congratulations on another successful effort to bring our official journal up to date and alive. As your staff has saved me a considerable amount of time and trouble in editing the rather hopeless reports usually sent me by lay reporters, I sign myself, yours very gratefully, P. J. SIMPSON, F.R.C.V.S., Hon. Secretary.

Shirley, Castle Hill, Maidenhead.

December 8th, 1923.

The Jersey Backslide.

TO THE EDITOR OF THE VETERINARY RECORD.

Sir,—I cannot allow Mr. Leese to claim that I have proved his case, unless it be on the grounds that he does not consider the R.C.V.S. is a trade or professional guild, union or society, which it is. Trade unionism is a natural or instinctive combination for the protection of the species, kind, craft or calling, and is as old as Creation itself. It is a counterforce begotten by force. The late Messrs. J. F. Simpson and W. O. Williams, members of Council, acted as the mouthpiece of the R.C.V.S., and there is no doubt that, through their persuasiveness and suavity in the negotiations with the W.O., they gained their point, and, in consequence, the A.V.C. was formed, and the rank or title and pay of its members placed on a basis almost, if not quite, equal to that of other branches of the Services. I am afraid, if Mr. Leese's ideas were carried out generally in practice, the individual would be taken in detail and dealt with as the Jersey and many other authorities deal with candidates who seem only too willing to accept anything that is offered them—on the principle of take it or leave it. Apparently, the manual labourer has a better conception of natural laws than the so-called highly-trained brain worker—that is, if Mr. Leese is right in his views.—Yours faithfully, HENRY GRAY.

Kensington.

December 11th, 1923.

The Editor begs to acknowledge the receipt of the following:—

Communications from Messrs. J. R. Barber (Hereford), J. C. Coleman (Swindon), Lieut.-Colonel W. T. Olver (Tamworth), and Mr. W. J. Stevens (Wincanton).

PERSONAL.

Dr. Hans Miessner has been elected Rector of the Veterinary High School, Hanover, for the period 1924-1926.

CABINET AND CATTLE DISEASE.

Sir William Joynson-Hicks, Minister of Health, speaking on Tuesday night at the annual dinner of the Royal Society of Medicine, at which the Prince of Wales was present as an honorary Fellow of the society, referred to the outbreak of foot-and-mouth disease. He mentioned that as a result of the outbreak cattle worth £70,000 were being slaughtered daily, and announced that only the previous day the Cabinet had appointed a committee to deal with the matter.

Mr. George Weir, M.R.C.V.S., Glasgow, has been co-opted as representative of the Kingston Ward on the Govan Combination Parish Council.

We learn from Messrs. Baillière, Tindall and Cox that since their last announcement of the reduction in price of several of their veterinary books, they have now decided to reduce the prices of their Atlas of the Anatomy and Physiology of the Dog from 10/6 to 5/-, and the Atlas of the Horse from 7/6 also to 5/-. It will, therefore, be possible for students and practitioners to have an anatomy of both these animals for the very modest sum of 10/-.

Mr. H. P. Hogben requests us to insert as an omission from the report given last week of the meeting of the South-Eastern Division, of which he is Hon. Secretary, the nomination for membership of Mr. L. P. Pugh, of Sevenoaks, by the President (Mr. G. W. Dunkin), seconded by Mr. Hogben, and supported by Mr. F. C. Gillard. Mr. Pugh will read a paper at the next meeting of the Division.

From January 24th to October 1st, 1922, the amount of gross compensation paid to farmers and others in connection with foot-and-mouth disease was—England, £689,178 13s. 7d.; Wales, £1,095; Scotland, £102,301 11s.; total, £792,575 4s. 7d.

The National Council of Pig-Breeders and Pig-Feeders are endeavouring to collect £5,000 with a view to putting into operation experimental and research work in connection with pigs—a question which has been under consideration for the past two years.

Sir R. Sanders (Minister of Agriculture), in the House of Commons, told Mr. Graham White (Birkenhead) that the number of Canadian cattle landed in Great Britain from April 1st to October was 33,044, of which 26,144 were consigned as store cattle.

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